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ABSTRACT

A study examined the growth of environmental journalism education in academia and continuing education in the early 1990s. Questionnaires were completed by 25 educators and readers of "JournE," a publication of the Environmental Health Center of the National Safety Council. While an estimate of the reliability of the overall return rate is not possible, the completed questionnaires appeared to be representative of known faculty teaching environmental journalism courses. A telephone survey of 15 environmental writers (members of the Society of Environmental Journalists) was also conducted. Results indicated that (1) science students' and journalism students' interest in environmental communication courses is growing rapidly on United States campuses; (2) students' interest was attributed by respondents to increasing awareness of and education about environmental issues and increased media coverage of the environment; (3) new programs, courses and chairs had recently been established; (4) students' mixed backgrounds and lack of statistics background worried some respondents; (5) educators felt the media had to do more to help the public better evaluate environmental information; (6) journalists believed coverage needed to be more thoughtful and explain the subtlety of issues; and (7) both journalists wanted more continuing education programs. While researchers are concerned about media coverage of environmental studies, environmental journalists are not happy with it either, according to the 1993 survey by American Opinion Research for the Foundation for American Communications. Growing and maturing educational programs at universities and in continuing education can only lead to a more sophisticated coverage of environmental issues. (Contains 18 notes and eight tables of data.) (RS)

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Environmental Journalism Education: A Growing Enterprise

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Paper presented at a session on
"Scigroup Ferment '94: New Directions in
Science and Environmental Communication Research"
AEJMC Annual Meeting
Atlanta, August 11, 1994

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ABSTRACT

ENVIRONMENTAL JOURNALISM EDUCATION:

A GROWING ENTERPRISE

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Paper presented at a session on
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This paper reviews changes in the field of environmer journalism education both in academia and continuing educa within the last five years. Based on a mail survey of edu and a telephone survey of selected environmental journalis shows that environmental journalism education is a field t growing and maturing. In academia, there are new courses programs and new endowed chairs. In continuing education professionals, there are many more programs available und media and foundation sponsorship.

Although it is maturing, the education field is stil with problems such as lack of appropriate texts, mixed ba grounds for students and fiscal constraints. The profess field of environmental journalism faces a number of probl discussed from both the perspectives of educators and jou ists. The latter information is derived from a telephone of selected leading environmental journalists as well as by American Opinion Research of more than 500 journalists Advice is offered from both educators and environmental j ists for improvements in environmental journalism and nee developments in environmental journalism education.

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Environmental Journalism Education:
A Growing Enterprise

Sharon M. Friedman
August 11, 1994

Environmental journalism has been on a fast track of growth since 1988 when a scorching summer and drought drew Americans' interest to the environment. That year, *Time* made a commitment to increase its environmental coverage as it named Earth its Planet of the Year. New magazines were started including *Buzzworm* and *Garbage*. Cable Network News decided to give the environment top priority and even smaller newspapers and broadcast stations indicated they were covering the environment more in 1990 than they had in the past two years. In 1988, the *Seattle Times* won a Pulitzer Prize for national reporting for its coverage of the Exxon Valdez oil spill--the first time in 11 years an environmental story had won.[1]

While there has been some slowdown recently in the growth in environmental journalism, it is still an area of intense media interest. A 1993 survey by American Opinion Research for the Foundation for American Communications (FACS) found that 46 percent of the 512 newsroom supervisors and reporters interviewed said their organizations had expanded environmental coverage over the past two years. Half of the newspapers, mostly larger ones, had specifically assigned a reporter to cover the environment. Twenty-six percent of the local television stations also had a specific reporter to cover environmental issues.[2]

From a prestige perspective, environmental reporting stories continue to win Pulitzer Prizes. In 1992, the *Sacramento Bee* won a Pulitzer for a series on environmental problems in the Sierras. In 1993, *The Atlanta Journal and Constitution* won the prize for a series that explored the diminishing effectiveness of pesticides and antibiotics. Also in that year, WCVB-TV in Boston picked up a Dupont-Columbia Award for a variety of environmental stories. Several newspaper series on environmental issues took multiple honors in national journalism competitions, including a reporting team from *The National Law Journal*, which won three major prizes for its reports on unequal enforcement of environmental laws in minority communities. Another multiple winner was a five-part series in the *Cleveland Plain Dealer* on radiation hazards and deaths in the nation's hospitals.[3]

The growth in size and prestige in the environmental jour-

nalism profession has been accompanied with a more moderate but steady growth in the field of environmental journalism education. Environmental journalism education is not new. Some courses in it date back to the early 1970s, however, there were not very many of them. The 1978 edition of the *Directory of Science Communication Courses and Programs* included 6 out of 105 courses specifically dealing with environmental writing and one with energy reporting. One university--the University of Michigan--out of 10 offering graduate degrees had one specifically in environmental communication.[4] Yet, science and environmental writing education were of interest to a number of people. In 1979, *The Journal of Environmental Education* devoted a special issue to "Teaching Science and Environmental Writing."[5]

The interest shown in those early years, spurred on by the growth in the profession, has now taken root with more programs and courses offered in environmental journalism, although today, as in the 1970s, science and environmental writing are still intertwined. Many faculty who teach environmental journalism also teach science writing. Because of this interconnection, frequently science and environmental writing courses are offered in the same program. Many science writing courses include environmental writing subjects; often publications dealing with science writing education and research also cover environmental writing.

Growth also has been spurred in continuing education for journalists because of the increasing numbers of reporters who are covering environmental issues and the complexity and importance of the issues they are covering.

This paper describes some of the growth that has occurred in environmental journalism education in both academia and in continuing education during the past five years, trying as best as possible to separate it from its close cousin, science writing. The paper also explores some of the problems that are still encountered in environmental journalism that have led to the need for more professional continuing education programs.

Methods

To evaluate the state of environmental journalism education at universities, a questionnaire was used. It consisted of 11 questions, 8 of which asked for factual close-ended replies, with spaces for additional information, while 3 were open-ended. The questionnaire was distributed in several different ways to reach people teaching in the field.

First, questionnaires and return mail pre-addressed envelopes were given to about 20 educators attending a symposium on environmental reporting at the 1993 meeting of the Association for Education in Journalism and Mass Communication, of which six were returned by mail. Second, the questionnaire was pub-

lished in the September 1993 issue of *JournE*, a publication of the Environmental Health Center of the National Safety Council. This publication is mailed to between 250-300 people, many of whom are not educators. Another six were returned from that mailing. A third effort involved mailing the questionnaire specifically to 24 people either listed as educators in the 1992 directory of the Society of Environmental Journalists or listed as teaching an environmental writing course in the 1991 edition of the *Directory of Science Communication Courses and Programs in the United States*.[6] Some of these people had already received the survey at the 1993 AEJMC meeting and had not returned it. Slightly more than half--13 surveys and one letter--were returned. A total of 25 questionnaires was obtained.

While there is no way to estimate the reliability of the overall return rate, due to the large number of people who received *JournE*, the 25 returned surveys are a fairly high representation--in fact, almost a census--of known faculty teaching in environmental journalism education. Responses were received from individuals associated with most of the major environmental journalism programs in the nation. No attempt was made to statistically analyze these findings due to the small number of respondents and the straight-forward qualitative nature of the questions.

A telephone survey of 15 environmental writers also was conducted to provide information on their views about environmental journalism education, among other things. The journalists surveyed were not selected at random but because they were active and visible members of the Society of Environmental Journalists. In addition, a much larger survey of environmental journalists had been sponsored by FACS earlier in the year, providing needed information, which will be discussed below.

The telephone survey consisted of seven open-ended questions and took about 15 minutes. Two pretest interviews were to be done in person but, due to time constraints, were returned by mail; 13 interviews were conducted by telephone. Due to the small number of interviews and the selection process, information from the survey is only provided for in-depth insight about some environmental journalists' opinions and cannot be generalized to the population of environmental reporters as a whole. The author wishes to thank Kristen Klick of Lehigh University for conducting the interviews.

Data from the FACS survey by American Opinion Research, discussed in this paper go beyond those provided in the official FACS/AOR report by Tony Casales[7] by breaking out two groups from the overall set of environmental journalists: the environmental specialist or beat group, and those who spent more than 50 percent of their time covering the environment. (These were not necessarily the same people as someone could be an environmental beat reporter and still spend less than 50 percent of his/her time covering the beat.)

The FACS survey data were gathered from 512 reporters, editors, managing editors and news directors from all key segments of the mass media between February 22 and March 17, 1993. The interviews averaged 15 minutes in length and were done by telephone. (See the FACS/AOR report for further details). The author would like to thank Tony Casales for his assistance in providing the additional information for this paper.

Academic Environmental Journalism Education

Growth in environmental journalism education in the nation's universities moved somewhat more slowly than that in the profession, but it reached new heights in 1993, despite academia's fiscal crunch. While not an overwhelming tide, the growth in this area has been substantial for a speciality journalism field, although it is not without its problems related to texts, students and fiscal constraints.

Interest in environmental communication courses is growing rapidly on U.S. campuses and not only for journalism students. Science students are taking these courses in greater numbers than in the past. The mail survey of environmental journalism educators found that 24 out of 25 respondents said students were either much more or somewhat more interested in environmental journalism now than five years ago (See Table 1). The majority believe that this interest is driven by students' increasing awareness of and education about environmental issues and increased media coverage of the environment (See Table 2).

The interest exhibited by science students is particularly strong among those majoring in environmental sciences or environmental studies. Others enrolling in environmental journalism courses include students majoring in the social sciences, natural resource programs and health sciences.

Increased student interest has affected environmental journalism courses, according to 84 percent of the respondents. Fifty-two percent said their courses had larger enrollments than ever before, 24 percent are offering more courses in environmental journalism, and 8 percent have developed or received support for developing new programs in environmental communication. Seventy-six percent of the educators indicated that, over the past five years, they or colleagues in their departments have added courses or segments to courses about environmental journalism.

Fifty-six percent said they offered one or more courses where environmental journalism was the main topic, with a total of 26 courses indicated (See Table 3). Most of these courses were either three or five credits. Thirteen courses were for undergraduates, six were for graduate students, six included both, and one was unspecified. The predominant major of students in these courses was either journalism/communication or some form

Table 1

Educators' Views of Student Interest in
Environmental Journalism Now
Versus Five Years Ago

Degree of Interest	% (N=25)
Much More Interested	44
Somewhat More Interested	52
Not More Interested	0
Don't Know	4
Total	100

Table 2

Educators' Views of What is Driving Increased Student Interest in Environmental Journalism

Reasons	% (N=25)*
Increased Awareness and Education about Environmental Issues	36
Increased Media Coverage	36
Political Issues and Climate	20
Seriousness of Environmental Problems	20
Grassroots and Environmental Movement	8
Increased Public Interest in the Environment	8
Job Opportunities	8
Other	8
Total	144

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*Educators were allowed more than one response, accounting for more than 100 percent.

Table 3

Number of Courses Currently Offered Where Environmental Journalism is the Main Topic

Number of Courses Offered	% of Educators (N=25)
0	44
1	28
2	16
3	8
5	4
Total	100

of environmental sciences or studies.

Sixty-four percent of the educators said that they or departmental colleagues offered a total of 41 courses where environmental journalism was included, but not the main topic. Two people had six courses in their departments in this category, but the majority had just one or two (See Table 4). Twenty-one of these courses were journalism or communication, 12 were science writing, 3 were environmental studies, and five were English courses. The majority were three credit courses for undergraduates with the majors in either journalism/communication or science.

New Programs, Courses and Chairs

Among new programs being offered is one by the Center for Environmental Journalism at the University of Colorado, which allows students to obtain a Master of Arts degree in journalism and a certificate in environmental policy. The university also offers courses in environmental reporting and science writing and, in 1993, started a professional-in-residence program funded by a grant from the Freedom Forum Foundation.

Other signs of growth can be found at Antioch College, which is developing an entire curriculum in environmental communications, and at Brigham Young University, which started teaching a course in environmental communication. Cornell University is strengthening its program by hiring a new assistant professor in environmental/science communication primarily to teach undergraduates.

Two existing programs with undergraduate majors in environmental journalism and increased course enrollments can be found in the Huxley College of Environmental Studies at Western Washington University and in the Department of Journalism and Communication at Lehigh University. Both programs offer a wide range of environmental and science writing courses and sponsor student publications. At Huxley, it is the *Huxley Hotline*, a weekly newsletter. At Lehigh, it is *SciencePages*, a weekly section of the student newspaper, usually 4-8 pages, which features both science and environmental writing.

An established program at the graduate level that also saw increased interest in environmental reporting is at New York University, which has offered a three-semester program in science and environmental reporting for a number of years, primarily to students who were science undergraduates. Graduates receive a Master of Arts degree in journalism and a certificate in science and environmental writing.

Some other universities offering courses in environmental writing include Wisconsin-Madison, Northern Arizona, Indiana, Michigan, Ohio State, Marquette, Colorado State, Middle Tennessee

Table 4

Number of Courses Currently Offered Where Environmental Journalism Is Included But Not the Main Topic

Number of Courses Offered	% of Educators (N=25)
0	20
1	24
2	16
3	8
4	4
5	4
6	8
No Answer	16
Total	100

State, Oregon, Central Michigan, California at Berkeley, Missouri, Stanford and Columbia.

Another indicator of expansion in the field are two endowed chairs in environmental journalism that were advertised during the fall of 1993. Michigan State University has just filled its Knight environmental journalism chair by hiring Jim Detjen, science and environmental reporter for the *Philadelphia Inquirer* and current president of the Society of Environmental Journalists. He will help close the "knowledge gap between journalists and scientists--a gap that too often results in a public uninformed about environmental issues," according to the John S. and James L. Knight Foundation of Miami, which funded the $1 million chair. Stan Soffin, chair of the School of Journalism, said the school and Detjen will work closely with the university's Center for Environmental Toxicology.[8]

The other endowed chair in environmental communications is at Loyola University in New Orleans. It was established with funding from Freeport-McMoRan Inc., and the university. According to Larry Lorenz, chair of the Department of Communications, the endowed chair could provide the possibility of developing a major environmental journalism program for both undergraduate and graduate students, and perhaps later attracting professionals for mid-career training.[9]

Most of the educators answering the mail survey said the field of environmental journalism education is maturing and is "definitely a growth industry at this point." According to one respondent, "The field is getting more attention from various perspectives and interest groups." An example of this was the "Environmental Journalism Summit" sponsored by The Freedom Forum in January 1993. Another was the major meeting of journalism educators and researchers on "Media and the Environment" in April 1994, which was co-sponsored by 18 out of 24 AEJMC divisions and interest groups.

Will the growth continue? Forecasting the future, 32 percent of the survey respondents said their departments would be developing more courses, 16 percent expected to develop an undergraduate major or minor, and 48 percent indicated interest in developing a graduate degree specializing in environmental journalism.

The environmental journalism educators have been propelling growth in their field by networking and sharing information. Several seminars at the annual meetings of both the AEJMC and the Society of Environmental Journalists have highlighted various environmental journalism education programs with syllabi exchanges. Three newsletters serve environmental journalism educators: *SCIPHERS*, the newsletter of SCIgroup, the Science Writing Interest Group of the AEJMC, *JournE*, a publication of the Environmental Health Center, and *Inquiry*, published by the Science Journalism Center at the University of Missouri.

Problems Faced by Educators

Despite all of these successes, environmental journalism education also has problems. From the teaching perspective, several survey respondents called for more internships and more sophistication in teaching students about complicated environmental risks. A few people indicated that there was just too much to teach in one course and that they needed more time to deal with the science, technology and law involved in environmental issues.

Two overriding problems seen by the educators concerned textbooks and the wide variety of students in environmental journalism courses. Almost no one liked any of the textbooks available, indicating they were either too narrow or too general. Some people noted, however, that there were a number of other resources available including reporting guides on various environmental issues and videotapes to use in the classroom (see below).

Student-centered problems revolve around the mixed backgrounds of those taking environmental journalism courses. Said one educator: "Teaching a course in reporting and environmental issues is tough because of the wide range of skills among the students." The journalism students generally have poor science backgrounds, while the science students lack media training. Some educators suggested requiring science minors for environmental journalism students. There was a general concern among the educators about the lack of statistics background, while several people noted that students need more critical questioning skills.

Most administrative problems affecting environmental journalism courses centered around departmental budgets, restricted university funding and a shortage of faculty members which did not allow these courses to be offered as frequently as they should be. Several faculty noted that the number of students enrolling in environmental journalism classes had to be high if they were to be taught.

Despite these problems, 76 percent of the survey's respondents said the field of environmental journalism education was increasing in importance, while 8 percent said it did not need to increase because it already was important. The educators based their reasoning on the importance of environmental concerns as an issue for the nation and the world, and the need for people to know more about these concerns.

Problems in Environmental Journalism and the Need for Professional Continuing Education

Continuing education for professional journalists is also an important part of the environmental education picture. In par-

ticular, since this field is growing rapidly, young people come into it from a variety of academic disciplines and may not have taken environmental journalism courses (or any journalism courses) as undergraduates. As a result of this and other factors, communication researchers have found a number of serious problems in environmental coverage. Some key concerns are a narrow choice of information sources, avoidance of scientific and technical information and lack of in-depth reporting and follow-up.[10]

Particularly when journalists cover environmental risk issues such as dioxin or Alar, researchers have found other serious limitations: the coverage does not put a risk issue within a larger context, nor does it supply specific risk numbers or use tools such as risk comparisons to help readers better understand the risks.[11]

Some of the problems noted by communication researchers are more those of general assignment reporters who occasionally cover the environment and move from subject to subject at an editor's whim and therefore have little background in most subjects, particularly technical ones. But even experienced environmental journalists have some problems. Many environmental journalists are not well trained in science and scientific risk assessment, although they are pretty savvy in the political and public interest arenas. Even if they are trained in science, they cannot be specialists in every field. And what about economics or law? Environment is a multi-dimensional subject that requires training in a number of fields besides science.

A study conducted by the PresentFutures Group for Fairness and Accuracy in Reporting (FAIR) done in late 1991 of 33 major daily newspapers and the ABC, CBS and NBC evening newscasts found that coverage of environmental stories tended to be reactive, focusing on events and disasters, or on government announcements. "Regardless of topic, U.S. environmental stories were framed in remarkably consistent ways--ways that often precluded portrayal of a complete picture of environmental issues or serious consideration of alternatives to pollution-as-usual."[12]

While researchers are concerned about the coverage, environmental journalists are not that happy with it either, according to the 1993 survey by American Opinion Research for FACS. Asked to rank the overall quality of environmental reporting in newspapers, wire services and magazines on a five-point scale with five being very good and one being very poor, 212 print reporters gave the coverage an average rank of 3.3, with only 36.6 percent considering it good or very good. For the 90 specialists who considered environmental reporting their primary beat, only 29.9 percent considered it good or very good, with an average rank of 3.2. However, 37.1 percent of 64 print reporters who covered the environment more than 50 percent of the time (the 50 percenters) considered the coverage good or very good, with an average rank of 3.3 (See Table 5).[13]

Table 5

Print Reporters' Perceptions of the Quality of Environmental Reporting in Newspapers, Wire Services and Magazines*

Quality**	% of All Print Reporters (N=212)	% of Environmental Beat Reporters (N=90)	% of Those Coveri Beat 50%+ Ti (N=64)
5-Very Good	3.3	0.9	1.2
4	33.2	29.0	35.9
3	49.4	58.2	53.2
2	9.6	10.1	5.6
1-Very Poor	2.0	--	1.5
Don't Know	1.9	1.8	2.5
Refused	0.6	--	--
Total	100.0	100.0	99.9
Mean	3.3	3.2	3.3

*Data supplied from 1993 survey by American Opinion Resear (AOR), Inc. for the Foundation for American Communication

**AOR used a five-point scale with 5 being very good and 1 very poor.

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No one ranked broadcast reporting on the environment as very good. Twenty-six percent of all 50 broadcast reporters, 31.6 percent of the broadcast environmental specialists and 41.7 percent of the broadcast 50 percenters ranked it as good. The rank averages were 3.0, 3.2 and 3.3 respectively (See Table 6).[14]

Asked about their own organizations' environmental coverage, 42.9 percent of all print and broadcast reporters said it was either good or very good, providing an average rank of 3.3, while 52 percent of the environmental specialists considered it good or very good, ranking it a 3.5. The 50 percenters saw the coverage as even better, with 63.6 percent of the 76 reporters in this category saying it was good or very good and ranking it at 3.7. However, even a 3.7 is barely a C+ rating (See Table 7).[15]

Thirty-two percent of all of the reporters, but 45 percent and 48 percent of the environmental specialists and the 50 percenters strongly or somewhat agreed that editors do not understand the importance of environmental coverage. A smaller, but still fairly large group ranging from 39 percent to 45 percent respectively agreed that stories about environmental issues often lose in the struggle for space or time because they lack prestige with editors.[16]

Other concerns reporters had about environmental reporting shown in the FACS survey included 72 percent feeling that reporters, in general, lacked the training and background to cover stories on technical environmental issues. Sixty-nine percent felt it was hard to find an expert on environmental issues who is not biased either toward environmental activism or business. Fifty-nine percent felt it was difficult to get experts on technical issues who speak plain English.[17]

Concerning support from their publications or stations, about 69 percent were satisfied with the placement or emphasis given to environmental stories, 84 percent were pleased with the freedom they were given to generate ideas for environmental stories but only about 37 percent were happy with the amount of space and resources devoted to covering the environment. Both the environmental specialists and the 50 percenters were more satisfied on these issues. Only 27 percent of the reporters felt they had enough opportunity to travel on assignments (See Table 8).[18]

Professional Continuing Education Efforts

Continuing education efforts for environmental journalists designed to deal with some of the problems discussed above have been increasing and consist mainly of workshops or seminars that last anywhere from one to three days. Major efforts have been led by the Environmental Journalism Program of FACS and by the Environmental Reporting Forum which, until December 1993, was jointly sponsored by the Radio and Television News Directors Foundation and the Media Institute. The FACS program is spon-

Table 6

Broadcast Reporters' Perceptions of the Quality of Environmental Reporting in Broadcasting*

Quality**	% of All Broadcast Reporters (N=50)	% of Environmental Beat Reporters (N=19)	% of Those Covering Beat 50%+ Time (N=12)
5-Very Good	--	--	--
4	26.0	31.6	41.7
3	54.0	57.9	41.7
2	16.0	10.5	16.7
1-Very Poor	4.0	--	--
Total	100.0	100.0	100.1
Mean	3.0	3.2	3.3

*Data supplied from 1993 survey by American Opinion Research (AOR), Inc. for the Foundation for American Communications.

**AOR used a five-point scale with 5 being very good and 1 being very poor.

Table 7

Reporters' Perceptions of the Quality of Environmental Reporting in Their Own Organizations*

Quality**	% of All Reporters (N=262)	% of Environmental Beat Reporters (N=109)	% of Those Covering Beat 50%+ Time (N=76)
5-Very Good	8.3	8.9	7.5
4	34.6	43.1	56.1
3	39.9	37.9	34.3
2	15.0	8.7	--
1-Very Poor	1.1	--	--
Don't Know	0.3	0.8	1.1
Refused	0.8	0.8	1.1
Total	100.0	100.2	100.1
Mean	3.3	3.5	3.7

*Data supplied from 1993 survey by American Opinion Research, (AOR) for the Foundation for American Communications.

**AOR used a five-point scale with 5 being very good and 1 being very poor.

Table 8

List of Reporters' Responses to Four Questions
About Their Satisfaction*
with Support From Their Organizations**

Subject	% of All Reporters (N=262)	% of Environmental Beat Reporters (N=109)	% of Those Covering Beat 50%+ Time (N=76)
Placement or Emphasis Given to Environmental Stories	69.4	68.5	71.0
Freedom to Generate Own Environmentally Related Story Ideas	83.9	91.3	94.8
Amount of Space and Resources Devoted in Organization to Covering the Environment	36.9	42.3	48.5
Opportunity to Travel on Assignments	26.7	26.2	28.7

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*Those indicating a 5 or 4 on a 5-point where 5 is extremely satisfied.

**Data supplied from 1993 survey by American Opinion Research, Inc. for the Foundation for American Communications.

sored by a $1 million grant from the W. K. Kellogg Foundation. Assistance also has come from some government grants to third parties including universities. For example, in 1992, the Environmental Protection Agency gave a grant to Lehigh University to sponsor a series of presentations at major professional journalism society meetings to help reporters better understand the risk assessment process. For longer periods of training, Harvard University is offering two prestigious Nieman Fellowships for 1994-95 for environmental journalists, one from the United States and one from abroad.

In addition to reporting on risk assessment, some recent continuing education seminar subjects include reporting on environmental health risks, domestic environmental issues, global environmental issues, and water resources, among others.

There also has been activity on the international scene with continuing education programs in environmental journalism. The Washington-based Center for Foreign Journalists has sponsored a number of training programs under grants from the John D. and Catherine T. MacArthur Foundation, the W. Alton Jones Foundation and the Asia Foundation, among others. The German Marshall Fund has funded continuing education for environmental journalists from Central and Eastern Europe for four years both there and in the United States under the auspices of the Environmental Health Center. The United Nations' Economic and Social Commission for Asia and the Pacific (ESCAP) in Thailand helped develop and has been supporting the Asian-Pacific Forum of Environmental Journalists, a network of environmental journalist forums from 15 nations.

A number of handbooks and videotapes to help both U.S. and foreign reporters cover environmental journalism topics also have been developed. In the United States, publications from the Environmental Health Center include: *Reporting on Municipal Solid Waste: A Local Issue*; *Covering the Coasts: A Reporter's Guide to Coastal and Marine Resources*; and *Chemicals, the Press and The Public*. The Environmental Reporting Forum and the Media Institute have recently published the second edition of *Environmental Issues for the '90s: A Handbook for Journalists*. The Media Institute also has published *Health Risks and the Press* and *Reporting on Risk*. Island Press has published *Media and the Environment*. In Asia, ESCAP and the Asia-Pacific Forum have published *Reporting on the Environment: A Handbook for Journalists*, which has been translated into seven languages. Several of the Asian national forums also have put out publications. For example, the Nepal Forum of Environmental Journalists recently published *Playing with Poison*, a handbook for reporters on pesticide use in that part of the world.

To help television reporters, the Environmental Reporting Forum has issued videos on "Covering Environmental Risk Stories" and "Beyond the Spotted Owl: How to Cover the Environment in the '90s." FACS has a video on "Business and the Environment."

Professional and Educational Improvements Needed

While many efforts are already being made to improve both environmental coverage and environmental journalism education, still more need to be attempted, according to both the journalists and educators surveyed.

To improve environmental coverage, the educators said that it needs to be broader, showing relationships between issues, global perspectives and more awareness of the social and cultural systems involved in environmental issues. There also were calls for greater context, more synthesis and in-depth reporting, and more sophistication in using facts. In general, the educators felt the media had to do more to help the public better evaluate environmental information.

Many of the coverage improvements journalists would like to see are similar to those expressed by the educators. The environmental journalists interviewed for this paper believed coverage needs to be more thoughtful and explain the subtlety of issues. They would like less crisis coverage, more follow-up reporting and more articles about solutions to environmental problems. As one journalist noted, coverage needs to be broadened away from legislation and regulations to include health, consumer issues, and costs and benefits of taking and not taking action.

To develop better environmental reporting, both the journalists and the educators wanted more continuing education programs. They called for better science backgrounds for environmental journalists and enhanced professional skills, particularly for those who do not cover the environment on a regular basis. Both would like to see more support for the environmental beat and recognition of its importance from editors and news directors.

Providing advice to educators for training future environmental journalists, the reporters said an ideal education would be an undergraduate program with a combination of journalism and science courses and some background in economics and politics. Students need to know more about the complexities of risk and risk assessment, ecological relationships and environmental law, they said. The reporters urged educators to teach students to be skeptical and objective and to establish a high standard for truth. They also suggested training for students in investigative techniques, computer-aided reporting and database use.

While such a program might be a tall order for all environmental journalism educators, many of the elements are already in place at various universities. More can be expected as environmental journalism education continues to grow and mature. In the long run, such educational programs in both universities and in continuing education can only lead to more sophisticated coverage of environmental issues and a better informed public.

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